

What is claimed is:

1. A simulation apparatus configured to estimate properties of a semiconductor device, comprising:

a first calculating part configured to calculate a first value corresponding to a prescribed physical property value by taking a prescribed physical quantity into consideration, with regard to at least a partial region of said semiconductor device;

a second calculating part configured to calculate a second value corresponding to said physical property value without taking said physical quantity into consideration, with regard to at least a partial region of said semiconductor device, and

a visualizing part configured to display, in a prescribed form, a correlation between said first and second values.

2. The simulation apparatus according to claim 1, wherein said prescribed physical quantity is a stress distribution inside said semiconductor device occurring during a process of fabricating said semiconductor device.

3. The simulation apparatus according to claim 2, wherein said stress is a hydrostatic pressure obtained as an average value between the stress in a crosswise direction and the stress in a lengthwise direction.

4. The simulation apparatus according to claim 1, wherein said physical property value is a value relating to at least one of a mobility of carriers, a carrier trap, a fixed electrical charge, a tunnel probability, a lifetime of carriers, generation-extinction speed of pair of carriers, a diffusion coefficient and a viscous coefficient.

5. The simulation apparatus according to claim 1, wherein said visualizing part illustrates changing

amount of said first value relative to said second value, with regard to at least a partial region of said semiconductor device.

6. A simulation apparatus configured to estimate properties of a semiconductor device, comprising:

a first calculating part configured to calculate a first value corresponding to a prescribed physical property value by taking a first physical quantity into consideration, with regard to at least a partial region of said semiconductor device;

a second calculating part configured to calculate a second value corresponding to said physical property value without taking said first physical quantity into consideration, and

a visualizing part configured to display a correlation between said first and second values on a distribution of said second physical quantity in a superimposing manner.

7. The simulation apparatus according to claim 6,

wherein said prescribed physical property value is a diffusion coefficient, said first physical quantity is a stress, and said second physical quantity is a concentration of atoms or molecules.

8. The simulation apparatus according to claim 7,

wherein said stress is a hydrostatic pressure obtained as an average value between the stress in crosswise direction and the stress in lengthwise direction.

9. The simulation apparatus according to claim 6,

wherein said prescribed physical property value is a viscous coefficient, and said first and second physical quantities are stress values.

10. The simulation apparatus according to claim 9,

wherein said stress is a hydrostatic pressure obtained

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as an average value between the stress in crosswise direction and the stress in lengthwise direction.

11. The simulation apparatus according to claim 6,  
wherein said prescribed physical property value is a mobility, said first physical quantity is a stress, and said second physical quantity is a current path.

12. The simulation apparatus according to claim 11,  
wherein said stress is a hydrostatic pressure obtained as an average value between the stress in crosswise direction and the stress in lengthwise direction.

13. A simulation apparatus configured to estimate properties of a semiconductor device, comprising:

a first correlation calculating part configured to calculate a correlation between a first value corresponding to a prescribed physical property value obtained by taking a prescribed physical quantity into consideration and a second value corresponding to the physical property value obtained without taking the physical quantity into consideration, based on the result of simulation carried out on a first simulating condition;

a second correlation calculating part configured to calculate a correlation between a third value corresponding to a prescribed physical property value obtained by taking a prescribed physical quantity into consideration and a fourth value corresponding to the physical property value obtained without taking the physical quantity into consideration, based on the result of simulation carried out on a second simulating condition; and

a visualizing part configured to display a relevance between the correlation calculated by said first correlation calculating part and the correlation calculated by said second correlation calculation part, with regard to at least a partial region of said semiconductor device.

14. The simulation apparatus according to claim 13,  
wherein said visualizing part displays a ratio of  
changing amount of said third value relative to said fourth  
value relative to the changing amount of said first value  
relative to said second value.

15. The simulation apparatus according to claim 13,  
wherein said prescribed physical quantity is a stress  
distribution inside said semiconductor device occurring  
during the fabrication of said semiconductor device.

16. The simulation apparatus according to claim 15,  
wherein said stress is a hydrostatic pressure as an  
average value between the stress in crosswise direction and  
the stress in lengthwise direction.

17. The simulation apparatus according to claim 15,  
wherein said physical property value is a value  
relating to at least one of a mobility of carriers, a carrier  
trap, a fixed electrical charge, a tunnel probability, a  
lifetime of carriers, generation-extinction speed of pair  
of carriers, a diffusion coefficient and a viscous  
coefficient.

18. A simulation method of estimating properties of a  
semiconductor device, comprising:

calculating a first value corresponding to a prescribed  
physical property value by taking a prescribed physical  
quantity into consideration, with regard to at least a partial  
region of said semiconductor device;

calculating a second value corresponding to said  
physical property value without taking said physical quantity  
into consideration, with regard to at least a partial region  
of said semiconductor device, and

displaying, in a prescribed form, a correlation between  
said first and second values.

19. A simulation method of estimating properties of a semiconductor device, comprising:

calculating a first value corresponding to a prescribed physical property value by taking a first physical quantity into consideration, with regard to at least a partial region of said semiconductor device;

calculating a second value corresponding to said physical property value without taking said first physical quantity into consideration, and

displaying a correlation between said first and second values on a distribution of said second physical quantity in a superimposing manner.

20. A simulation method of estimating properties of a semiconductor device, comprising:

calculating a correlation between a first value corresponding to a prescribed physical property value obtained by taking a prescribed physical quantity into consideration and a second value corresponding to the physical property value obtained without taking the physical quantity into consideration, based on the result of simulation carried out on a first simulating condition;

calculating a correlation between a third value corresponding to a prescribed physical property value obtained by taking a prescribed physical quantity into consideration and a fourth value corresponding to the physical property value obtained without taking the physical quantity into consideration, based on the result of simulation carried out on a second simulating condition; and

displaying a relevance between the correlation between said first and second values and the correlation between said third and fourth values, with regard to at least a partial region of said semiconductor device.